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A CONTAINER

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(57) A container having double thickness side walls (12, 24, 32, 40) and base (11) is disclosed. The container is made from a blank (10) of foldable material with inwardly inclined side walls (12, 24, 32, 40) and stacking lugs (34, 38, 38A, 39) projecting from the underside of the base (11). The walls (12, 24) of an opposed pair of side walls are of a reduced height.

AUSTRALIA**Patents Act 1990****COMPLETE SPECIFICATION
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**The following statement is a full description of this invention,
including the best method of performing it known to us:-**

THIS INVENTION relates to an improved container for produce.

Produce containers are sometimes made of polystyrene foam. These containers typically had vent openings in the side walls and base. The vent openings assisted in ventilating the produce. Foam containers are now no longer considered to be environmentally friendly or desirable.

Produce containers made of corrugated fibreboard are also known. Typically, the container was treated to render it moisture resistant. Wax was sometimes used although containers of this type were sometimes untreated. Vent openings were present in the side walls. The presence of such openings resulted in a container of reduced compression strength and this reduced the height to which the containers could be stacked and could lead to the produce being damaged.

Raw fibreboard edges were undesirable because this enabled moisture to enter the material of the container and reduce its strength. The vent openings and the upper open periphery of the container typically had raw edges. Moisture became a problem because full containers needed to be chilled or refrigerated and condensation could enter through the raw edges of the material from which the container was made.

One attempt at increasing the compression strength and hence stackability of produce containers involved the use of a plywood insert which extended along walls of the container and were captured between opposed fibreboard panels which comprised the side wall. The insert provided stacking projections along one edge and stacking recesses along another

edge. The presence of the insert added to the cost and made it more difficult to erect the container.

Fibreboard produce containers also suffered from sagging of the base. This, together with raw edges in the base, and those of the vent opening, tended to bruise or damage the produce.

It is an object of the invention to provide a container for produce which at least minimises the disadvantages referred to above.

According to one aspect of the invention there is provided a container made from a blank of foldable material, the container having a base comprising double thickness of the material from which the container is formed, two pairs of opposed side walls extending from the base, at least one of the pairs of side walls extending towards one another at an inclined angle relative to the base and at least one of the pairs of side walls having portions of a reduced height.

Preferably the inclined side walls are the walls having a reduced height portion. Where the container is rectangular, one pair of walls will be of a length shorter than the other pair of walls and it is preferred that the short pair of walls have the reduced height portion.

Although only one pair of walls need be inclined relative to the base it is preferred that both pairs of walls be inclined relative to the base of the container.

Stacking lugs may be present and extending outwardly from the underside of the base. These lugs may be formed by die cut portions at fold lines between the base and at least

one of the pairs of side walls. Preferably the stacking lugs are of multiple thickness.

The side walls are preferably of multiple thickness of material from which one container is formed. Double thickness is preferred. By having each side wall consisting of two side wall portions hinged to each other by fold or score lines and one of the portions hinged to the base, double thickness walls can be achieved. One portion is folded over the other portion and thus the upper periphery of the container does not present raw edges. This reduces the possibility of moisture entering within the material from which the container is made. The wall portions may be glued together for added strength.

The double thickness base is effective in eliminating or at least reducing sagging of the base of the container. The blank from which the container is made has a major base panel and a further base panel which overlies the major base panel. The further base panel may form a hinged extension to a free edge of any one of the side walls. Where the container is rectangular in shape it is preferred that the further base panel is hinged to one of the longer side walls. In an alternative embodiment opposed side walls have hinged thereto a portion of the further base panel such that these portions fold over and meet between sides of the base panel to form a complete further panel. The base panel portions may be hinged to either the short or long side walls but the long walls are preferred. Preferably the base panel portions are of equal size although this need not be the case.

The long side walls preferably have opposed end flaps hinged to edges of the wall portions. When the wall portions are folded over the end flaps overlie one another. The end flaps may be captured between the short side wall portions when the container is made up from the blank. The end flaps are hinged to the wall portions by inclined fold lines and this feature ensures that the side walls are inclined to the base of the container.

The blank may be made from corrugated fibreboard material having a fluted medium with a liner on each side. One of the liners has a facing sheet of white paper. The other liner may have a brown paper facing sheet. The container thus has a pleasing white appearance and substantially all visible surfaces of the container made from the blank are white. The liners may be secured using a plastics sheet, typically a polyethylene glue sheet and this provides a moisture barrier.

A particular preferred embodiment will now be described by way of example with reference to the drawings in which:

Figure 1 is a view of a blank from which a container according to a preferred embodiment may be made;

Figure 2 is a perspective view of a container made from the blank shown partially made up; and

Figure 3 is a further perspective view of the container almost completely made.

Figure 1 is a view of a blank from which the container of the invention is made. The blank 10 has a full

base panel 11. A side wall 12 is hinged to panel 11 by fold line 13. Wall 12 consists of wall portions 14, 15 separated by double score lines 16, 17. Portion 14 has parallel side edges 18, 19 terminating in inwardly directed edges 20, 21. Portion 15 has outwardly directed edges 22, 23. Side wall 24 is configured in a like fashion to opposed side wall 12 but is hinged to fold line 25. Like numerals are employed to identify features of wall 24.

A score line 30 separates side wall 32 from base panel 11. U shaped die cut portions 38a, 34 are located along line 30, and, when a container is made from the blank, project outwardly from the container and at a side edge of the base and provide stacking lugs. Side wall 32 consists of wall portions 33, 33a separated by a fold line 35. A further base panel 36 is hinged to portion 33 by a fold line 37. U shaped die cut portions 38, 39 are located along line 37 and, when a container is made from the blank, project outwardly from the container and at a side edge of the base panel. Portions 38 and 38a together provide a double thickness stacking lug as do portions 39, 34.

Wall portions 33, 33a have oppositely directed end flaps 42, 44 and 43, 45 respectively. Flaps 42 and 43 are hinged to portions 33, 33a by inclined fold lines 46, 47, while flaps 44, 45 are hinged to portions 33, 33a by inclined fold lines 48, 49. These inclined fold lines ensure that all side walls of the container are inclined relative to the base panel. Panel 36, in a container made from the blank 10, extends part way across base panel 11. Side wall 40 is

constructed identical to wall 32 and like numerals have been used on wall 40 to that of wall 32 to illustrate like features.

Flaps 42, 43, 44, 45 all have projections 50 which, when the container is made from the blank, are located adjacent corners of the base and extend outwardly from the base to the same degree as portions 38, 38a, 34, 39. Projections 50 also function as stacking lugs.

The opposite side of the panel 11 is constructed as the side just described and like numerals are employed in Figure 1.

In Figures 2 and 3 further base panels 36 are folded over base panel 11 and glued thereto. Side portions 33 are folded over portions 33a and glued thereto. Flaps 42, 43 are configured to overlie one another as are flaps 44, 45. The flaps are folded over in the direction of the arrows in Figure 2 and the side walls consisting of portions 33, 33a are folded up so that the opposed long side walls extend at an acute angle to the base and are directed towards one another. The stacking lugs as a consequence are caused to be directed out of the plane of the blank and assume the configuration of Figure 3. Portion 15 is folded over the end flaps 42, 43 and 44, 45 and the free edge of portion 15 locates in a space between side edges of panels 36 and fold lines 13, 25 to complete the container.

In the container shown partially completed in Figure 3 all side walls form an acute angle to the base and opposed side walls are directed towards one another.

The container of the invention has reduced height short inclined side walls of multiple thickness, double thickness long side inclined walls and a double thickness base. Stacking lugs are present at all sides of the base.

The sloping walls and reduced height short walls provide for ventilation in stack of like containers. The multiple thickness side walls give good compression strength to the container while the double thickness base provides resistance to base sagging. The way in which the container is made from the blank ensures that raw edges are substantially eliminated and the tendency for moisture to enter the material of the blank is reduced.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:-

1. A container made from a blank of foldable material, the container having a base comprising double thickness of the material from which the container is formed, two pairs of opposed side walls extending from the base, at least one of the pairs of side walls extending towards one another at an inclined angle relative to the base and at least one of the pairs of side walls having portions of reduced height.
2. The container of Claim 1 wherein the inclined side walls have said reduced height portions.
3. The container of Claim 1 or 2 wherein both pairs of said side walls extend at inclined inwardly directed angles relative to the base.
4. The container of any one of Claims 1 to 3 including stacking lugs extending outwardly from the underside of the base.
5. The container of Claim 4 wherein the stacking lugs comprise a double thickness of the material from which the container is formed.
6. The container of any one of Claims 1 to 5 wherein said side walls comprise a double thickness of the material from which the container is formed.
7. The container of Claim 6 wherein each said side wall comprises two side wall portions hinged to each other with one of said side wall portions being hinged to the base whereby the side wall portions overlap one another with the hinge between said portions defining an upper periphery of the container.

8. The container of Claim 7 wherein at least one said side wall portion of one of said side walls has a further base panel hinged thereto which, when the container is folded from the blank, overlies the base to thereby provide the double thickness base.

9. The container of Claim 8 wherein one said side wall portion of each said side wall of an opposed said pair has a further base panel portion hinged thereto which, when the container is folded from the blank, overlies the base to provide the double thickness base.

10. The container of Claim 9 wherein the base panel portions are of equal size.

11. The container of Claim 9 wherein the side walls from which the base panel portions depend are longer than the other said pair of side walls.

12. The container of Claim 11 wherein the side wall portions of the longer side walls have end flaps hinged to opposed edges thereof.

13. The container of Claim 12 wherein the hinge connecting the end flaps to the side wall portions extend at an inclined angle to the base.

14. The container of Claim 12 or 13 wherein said end flaps have projections which form double thickness stacking lugs.

15. A container substantially as herein described with reference to the drawings.

DATED this 18 day of March, 1992.

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By their Patent Attorneys

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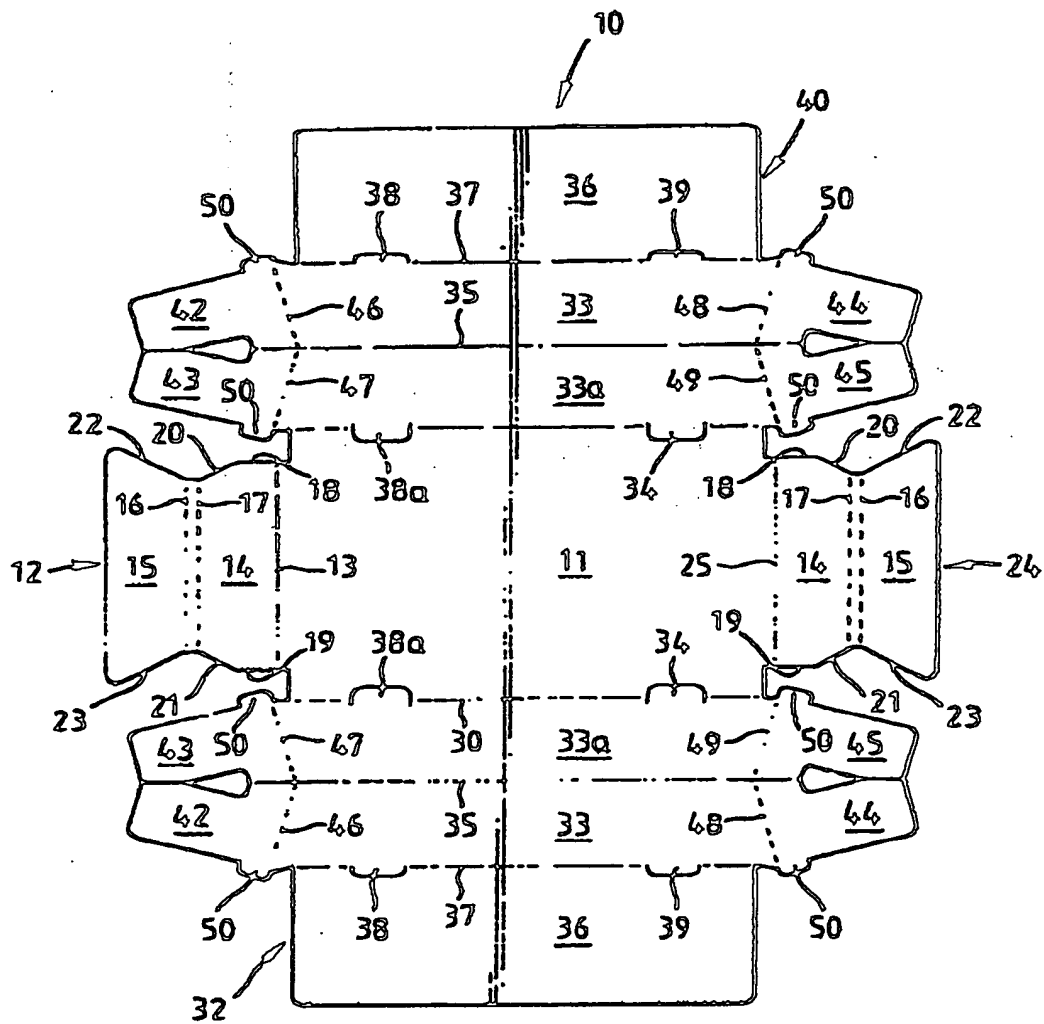


Fig.1.

